

APPENDIX G-1
Wildfire Safety Master Plan

Wildfire Safety / Vegetation Management Master Plan

TM5341RPL⁵, GPA 30-05, R 03-15, MUP 04-048

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Peaceful Valley Ranch Jamul, California

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APPROVED: Rural Fire Protection District

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1. INTRODUCTION / PROJECT DESCRIPTION

A. Introduction

This is the Wildfire Safety / Vegetation Management Master Plan ("Plan") for the Peaceful Valley Ranch project in Jamul, California. Peaceful Valley Ranch LLC ("PVR LLC"), owner of the property, has pending development applications consisting of a General Plan Amendment (GPA 03-05), Rezone (R03-015), Major Use Permit (MUP 04-048), and Tentative Map (TM 5341RPL⁵). These applications are currently being reviewed and processed for potential development entitlements by the County of San Diego.

This Plan is required by the San Diego Rural Fire Protection District (RFPD) and the County of San Diego Department of Planning and Land Use (DPLU). This Plan has been prepared by Scott Franklin Consulting (Urban-Wildland Fire Management consultant) in consultation and cooperation with PVR LLC and its other consultants. The scope of this Plan is limited to addressing and pursuing mitigation of the wildland fire threat, compliance with the 2001 California Fire Code Article 86 "Fire Protection Plan; Urban-Wildland Interface Areas," and the requirements of the RFPD and DPLU. By adopting this plan, PVR LLC meets the tenets of California law by managing this property in a reasonable manner (*Sprecher v. Adamson 1981*).

This Wildfire Safety / Vegetation Management Plan addresses vegetation management, introducing primarily native California shrubs and trees to produce a drought tolerant, fire resistive landscape. Validation for these recommendations is based upon the most recent historical catastrophic fire and weather history (Cedar Fire, October, 2003). Catastrophic wildfires generally occur only under extreme weather and related fuel conditions.

This Plan models wildfires under the extreme weather and fuel conditions associated with eastern San Diego County. The BEHAVE PLUS 2.0 model has been employed to validate both wildfire risks and the proposed Vegetation Management recommendations. The BEHAVE model, including BEHAVE PLUS 2.0, was developed by research scientists from USDA-Forest Service [Andrews & Bevens 2003; Burgan & Rothenmel 1984]. The BEHAVE PLUS 2.0 system provides an indication of how vegetative fuels will burn under specific fuel, weather and topography conditions. The system is a set of computer programs based upon energy release from specific fuels and is employed by wildfire professionals both nationally and internationally to predict wildfire behavior. Fuel Models used in BEHAVE PLUS 2.0 have been classified into four groups, based upon fuel loading (tons/acre), fuel height, and surface to volume ratio. The differences in fire behavior among these four models are basically related to fuel (tons/acre) and their distribution among fuel particle size classes.

With implementation of the provisions of this Plan, the Peaceful Valley Ranch community is being designated a "Shelter-in-Place" community by the RFPD.

All recommendations and requirements of this Plan are subject to all legal, environmental, cultural and resource laws and constraints. This Plan is subject to the approval of the RFPD and DPLU.

B. Property Description and Setting

The Peaceful Valley Ranch property is within the San Diego Rural Fire Protection District. The property consists of a total of approximately 181-acres located on the east side of SR-94, north of Ranch Jamul Drive and south of Melody Road, in the community of Jamul in San Diego County.

1. Assessor Parcel Numbers: The property includes Assessor Parcel Numbers 597-060-02, 597-070-02, 597-070-06, and 597-070-07.
2. Development Area: The total size of the area to be developed is approximately 162.03-acres, with a total of approximately 19.28-acres proposed as on-site sensitive habitat open space easement areas.
3. Development Plan: The Peaceful Valley Ranch development plan proposes the subdivision of 181.31-acres for an estate residential development, equestrian uses and amenities and fire service facilities. The development plan includes a total of 57 lots consisting of:
 - a) 1 – estate residential lot of 4.0-acres for the existing Ranch House (Lot 5);
 - b) 46 – new estate residential lots ranging in size from a minimum of 2-acres up to approximately 6.2 -acres (Lots 1-4, 6-47);
 - c) 1 - 6.7-acre equestrian facility lot (Lot 48);
 - d) 1 – 28.9 -acre private horse stable and training facilities / polo field lot (Lot 51);
 - e) 1 – 3.7-acre open space lot for the protection of biological resources (Lot 50);
 - f) 1 - 3.7-acre lot reserved for a new joint-use fire station and administrative offices of the RFPD and US Fish and Wildlife Service (Lot 49); and,
 - g) 6 - private roadway lots (Lots 52-57).
4. Building Occupancies: Types of building occupancies include:
 - a) R1 – Estate Residential and Equestrian Facility lots
 - b) B – Fire Station lot
5. Building Sizes: Residential buildings are anticipated to range in size from 3,000 sf to 4,500 sf.
6. Fire Service: The nearest existing RFPD fire station borders the property, and is located on the west side of SR-94 immediately opposite the current Peaceful Valley Road access to the property. As identified above, a 3.7-acre lot has been reserved within the Peaceful Valley Ranch development for a new joint-use fire station and administration offices of the RFPD and US Fish and Wildlife Service.
7. Primary Access: Primary access to the property will be from SR-94 via Peaceful Valley Ranch Road that is to be re-aligned to intersect with SR-94 at the current Melody Road intersection in the northeast corner of the property. The on-site circulation system will consist of private roads sized in accordance with the standards identified in this Fire Protection Master Plan. Access from Peaceful Valley Ranch Road to the equestrian facility and RFPD fire station site along SR-

94 will be un-restricted. Access to the single-family estate lots and private stables and training facility / polo field will be gate controlled.

8. Secondary Access for Emergencies: Secondary access for emergencies shall be provided within the project. A 24-foot wide paved access to SR-94 from Peaceful Valley Ranch Road is being provided adjacent to and south of the fire station site. This access shall be under the control of the RFPD and shall be utilized for emergency purposes only. The access shall be secured with either a gate or bollards and locked chain, with the RFPD controlling the operation and use of the access.
9. Surrounding Uses: Surrounding the property are several types of land uses, consistent with the Jamul/Dulzura Sub-Regional Plan. West of the property is located the Jamul Indian village and cemetery, the current RFPD fire station, various agricultural dry farming lands, and open space as identified in the Otay Ranch Specific Plan. Land uses to the north consist of estate residential single-family uses on lots ranging in size from 1-acre to 4-acres, with the larger lots located on steeper terrain. Rancho Jamul Estates, estate single-family uses on lots ranging in size from 2-acres to 3-acres, and certain undeveloped parcels and open space lie east of the property. Directly south and adjacent to the property is the Daley Ranch, a large dedicated open space area under the ownership and jurisdiction of the California Department of Fish and Game (CDF&G).
10. Water Service: Peaceful Valley Ranch is within the Otay Water District. The western 28.85-acre portion of the property is also within the SDCWA and MWD boundaries, and is currently served by the Otay Water District. The remaining 152.46-acre eastern portion of the property is currently outside the SDCWA and MWD service area. The Otay Water District has initiated the annexation process to annex the 152.46-acre portion into the SDCWA and MWD, and the annexation application is in process. Once the annexation is complete, the entire Peaceful Valley Ranch will be served by the Otay Water District. The closest public water supply system will be on-site.
11. Topography: The property is irregularly shaped with varying topography generally consisting of rolling hills and gently sloping plains, with elevations gradually increasing from west to east. There are two small knolls on the western portion of the property and a larger knoll located along the southern boundary. The eastern two-thirds of the property gently slopes up towards the east. The property's average slope is approximately 14%.
12. On-Site Vegetation:
 - a) The property has been farmed for over 40 years. Currently, on-site agricultural operations include the dry farming. Approximately 111.5 acres of the property are currently in agricultural production or developed. The remaining 69.81 acres of the property are in various communities of native and non-native vegetation, with the largest portion of this undisturbed and disturbed habitat lying along the northeastern boundary slopes.
 - b) As previously noted, over 61.5% of the property (111.5-acres) is currently in agricultural production or developed.

- c) A small 0.9% portion of the property (1.6-acres) consists of various wetland and woodland habitats.
- d) The remaining 37.6% (68.81-acres) of the site largely consists of mainly coastal sage scrub, southern mixed chaparral and non-native grassland vegetation communities, largely along the hilly northeastern boundary of the property. These habitat communities connect in a patchwork pattern to other native habitat communities to the north, east and south of the property.
- e) Specific on-site vegetation communities include:

○ Coast live oak woodland:	0.9-acres
○ Riparian woodland	0.40-acres
○ Mule fat scrub	0.03-acres
○ Diegan coastal sage scrub:	27.40-acres
○ Diegan coastal sage scrub – disturbed:	2.20-acres
○ Southern mixed chaparral:	3.10-acres
○ Non-native grassland:	25.0-acres
○ Non-native vegetation – other:	0.90-acres
○ Eucalyptus woodland:	0.40-acres
○ Disturbed habitat	9.50-acres
○ Agriculture	106.0-acres
○ Developed	<u>5.50-acres</u>
Total:	181.31 acres*

* Total acreage (if column is added) equals 181.33 (not 181.31) due to rounding

13. Surrounding Off-Site Vegetation:

- a) Lands to the west of the property consist largely of undeveloped, natural vegetation. In fact, the eastern front of the Otay fire of 2003 reached the crest of hills approximately ¼-mile west of the property. This threat from the west will be somewhat mitigated if the Jamul Indian band develops their proposed casino immediately west of the property, particularly if that project is developed with wildfire safety provisions in mind.
- b) A further threat is posed by the open space property owned and managed by the CDF&G immediately south of and adjacent to the property. While the current vegetation on this property appears to consist largely of native and non-native grasslands, as opposed to the higher risk coastal sage scrub and chaparral vegetation communities, on-going fire management and control plans and activities of CDF&G are unknown.
- c) Finally, the open space lands and patchwork of native vegetation existing along the eastern and northeastern boundaries of the property also poses a significant wildfire-spread risk. The presence of the Jamul Estates development east and southeast of the property somewhat mitigates that wildfire threat. Most of the lots within the Jamul Estates development have been landscaped and irrigated with ornamental plantings.

14. Weather Conditions:

This area is subject to severe weather extremes. These weather extremes directly affect the flammability of the native vegetation. Elevated air temperature episodes - above 105°F in the summer months - and high wind velocity episodes out of the north or northeast above 40 mph in the fall or winter months can be anticipated.

15. Existing Local Fire Service Facilities and Equipment:

- a) The RFPD currently occupies a fire station on a leased parcel of land on the west side of SR-94 immediately west of the Peaceful Valley Ranch property. This land lease will expire in 2009. The existing fire station facilities include a 3-bay apparatus building of approximately 4,000 sf., and an administrative office of approximately 1,440 sf. RFPD houses a brush truck, fire engine and rescue truck at this station.
- b) The RFPD has analyzed alternative fire station locations to re-locate its facility once the current land lease expires, and has concluded that the Peaceful Valley Ranch proposed site is the preferred alternative.

16. Proposed Peaceful Valley Ranch Fire Station:

- a) As part of the Peaceful Valley Ranch development program, Lot 49 is being reserved for a joint-use RFPD / USFWS fire station. This lot will be conveyed to the RFPD pursuant to a Fire Service Agreement entered into between the RFPD and Peaceful Valley Ranch LLC, owners of the Peaceful Valley Ranch property, and conditioned upon final approval of the Peaceful Valley Ranch development. A proposed Site Plan illustrating the uses and layout of that facility has been prepared and is incorporated herein as Exhibit A.

2. FIRE HISTORY

A. Recent Vicinity Fires

- 1. Otay Wildfire: As noted above, the eastern front of the Otay wildfire of 2003 burned to within ¼-mile of the western boundary of the property. The Otay wildfire, in conjunction with the simultaneous disastrous Cedar and Paradise wildfires of 2003 burned an area of 375,000-acres in San Diego County, destroying over 2,400 structures and killing 16 people. The Otay wildfire itself was contained at 51,000-acres with no structure losses or deaths. The eastern edge of the wildfire was contained by the extraordinary efforts of the fire fighting personnel in the setting of strategic backfires and simultaneous hand and equipment clearing of fire fuel load.
- 2. Proctor Valley Wildfire: Prior to the Otay wildfire, the last significant wildfire in the area was the Proctor Valley Wildfire of 1999. This wildfire burned over 1,200-acres, with no structures lost and no loss of life.

3. FIRE SPREAD MODEL / RISK ASSESSMENT

A. Introduction

1. Fuel Groups: Observation of the location and positioning of fuels in the field (on-site) determines which fuel groups are represented. Selection of the appropriate fuel model may be simplified if one recognizes those features that distinguish one fuel group from another, according to the following categories:

Grasses - Fuel Models 1 through 3

Brush - Fuel Models 4 through 7

Timber- Fuel Models 8 through 10

Logging Slash – Fuel Models 11 through 13

2. Principles of Vegetation Management:

a) Fuel: To better understand the principles of vegetation management in the chaparral and coastal sage community, a brief discussion regarding vegetation/fuels is appropriate. All vegetation is considered “fuel”. No “fire proof” vegetation exists. All vegetation will burn, but some require more heat in order to ignite and propagate flame. An example is dry grass versus green grass. Dry grass will ignite immediately, while green grass must lose its moisture before it will ignite. Chaparral with high oil content (above 6%) will burn quicker and hotter than chaparral with a high leaf moisture and low oil content. More than 90% of the flaming front of a wildfire is composed of fuel less than one-half inch in diameter, and is consumed in minutes. Small branches and leaves make up this type of fuel. Fuels larger than one inch in diameter are termed “residual” fuel and may require several hours to burn out. This larger fuel does not contribute to the forward rate of spread of the fire.

b) Oil and Moisture Content: Oil and moisture content varies between fuels, depending upon the time of year. For example, Black Sage (*salvia mellifera*) may have an oil content approaching 20% of its weight, but in the spring, it has moisture content over 300%. By summer, the moisture content may be lower than 60%. Manzanita (*Arctostaphylos sp.*) oil content is about 15% and moisture varies between 120% and 50%. Scrub oak (*Quercus dumosa*) has oil content below 4% and a moisture content above 100%. *Ceanothus sp.* has a low oil content, with *C. spinosis sp.* retaining moisture at 100% or higher. When stressed during extreme dry periods, *Adenostoma sp.*, *Arctostaphylos sp.*, and *Artemesia sp.* will react explosively when moisture falls below 60%. Conversely, *C. spinosis* and *Q. Dumosa* require high energy to sustain ignition.

There are two types of fuel moisture to consider; i.e., dead fuel moisture (1-hour time lag; 10-hour time lag; 100-hour time lag; and 1000-hour time lag) and live fuel moisture.

Temperature, aspect, time of day, relative humidity and month of the year determine the percentage of dead fuel moisture. 1-hour time lag fuel is less than ½ inch thick; 10-hour fuel is between ½ inch and 1 inch thick; 100-hour is between 1 inch and 3 inches; and 1000-hour fuel is above 3 inches in thickness. 1-hour time lag fuel can reach equilibrium with the surrounding atmosphere in one hour,

and within minutes when air temperature is high—above 80° F and relative humidity is below 25%. 1-hour fuel moisture may be calculated using a set of tables that reference time of day, month, aspect, slope, temperature and relative humidity. 10-hour time lag fuel can take up to 10 hours to reach equilibrium; and, 100 and 1000-hour fuels follow the same pattern. In southern California, 1-hour, 10-hour and 100-hour time lag fuels are usually given equal value. 1000-hour time lag fuel, which happens to be timber, is used in measuring drought effects. Forests are considered ‘critical’ when 1000-hour fuel measures less than 15% (kiln dried wood is 22%).

Live fuel moisture is the moisture found in the leaf and woody portion of a shrub. Live fuel moisture is calculated by cutting a small branch (less than 3”), weighing the branch, placing it in a low temperature oven for 12 hours, removing the branch and weighing it again. The difference in weight is the loss of moisture in the leaves and woody portion of the branch. For this reason, live moisture may exceed 100% of the dry weight of the plant. Live fuel moisture is the highest in the spring and early summer, and the lowest in late summer, fall and early winter. Los Angeles County Fire samples live fuel moisture from representative sites throughout Los Angeles County twice each month. Fuel moisture from these sites, while not site-specific to north San Diego County area, can serve as an indicator of moisture content. This is a valuable tool in predicting wildfire potential over a general area.

3. FUEL – Arrangement, Loading, and Chemical/Moisture Content:

a) Measuring Techniques: Measuring the force of wildfire is accomplished by observing flame lengths produced by burning vegetation. There exists a direct relationship between the amount of energy released, per second, and the length of flame generated. The United States standard for measuring energy released per second is the British thermal unit or “Btu”. One Btu is the amount of energy required to raise one pound of water one degree Fahrenheit. A single kitchen match or single candle flame equals one Btu. A cup of gasoline contains about 8,500 Btu’s. Comparably, a pound of chaparral contains 8,500 to 10,000 Btu’s, depending upon oil content (ether extractives).

Ignite gasoline in a cup and it will burn evenly. Spread the cup of gasoline across the floor and it will burn rapidly, if not explosively. Similarly, aerate a pound of chaparral, as occurs naturally, raise the surrounding temperature to 100°F and, in addition, pass a 30 mph wind through it, provide ignition, and the chaparral will burn almost as explosively as the cup of gasoline spread across the floor. On the other hand, grind, cut or chip chaparral into pieces less than 3” long, place on the ground as “mulch” and attempt to ignite it. The chaparral will burn very slowly or only smolder. This demonstration suggests that fuel arrangement and fuel chemical/moisture content play an equally important role in wildfire combustion.

b) Moisture: Moisture in the form of high leaf and woody fuel moisture, high relative humidity (Rh above 50%), is significant because it requires energy to dry out the fuel in order for it to burn. High winds and or high temperatures remove moisture, allowing the shrub to burn more rapidly. Lower fuel moisture, both dead and live, equal higher fire intensity. Wetter fuel inhibits complete combustion as well as producing excessive smoke. Live vegetation in its natural

state exhibits a high surface to volume ratio. Standing grass and standing chaparral have a high surface to volume ratio. Forest litter on the ground (leaves & small twigs) and chipped or cut biomass exhibit a very low surface to volume ratio.

c) Oil Content: Chaparral, particularly *salvia sp.*, is found in most vegetative communities (excluding riparian) and has an oil content of 15 to 19%. Riparian vegetation, including Sycamore (*Plantus racemosa*), Coastal live oak (*Quercus sp.*), green bark ceanothus (*C. spinosis*), and Mulefat (*Baccharis sp.*), are considered wet or high leaf moisture vegetation. This high leaf moisture acts as an energy sink, requiring higher Btu output to ignite or sustain ignition.

B. Fuel Management Practices – Definitions

1. Definitions: Terms used to describe various activities or actions regarding fuel management often times are misused or misstated. The following terms regarding fuel management practices are recognized as the standard for the fire service:

Defensible Space: Area with low fuel volume that affords protection for fire personnel, as well as residents.

Fireline: A narrow line, 2 to 10-feet wide, from which all vegetation is removed.

Firebreak: Specifically, a Fireline wider than 10-feet, prepared annually.

Firelane: An access line, prepared either ahead of the fire or in advance of fire season, forming the basis for a firebreak.

Fire Control Line: A strip of land cleared to mineral soil.

Fuelbreak: A strategically located wide block, or strip, on which vegetative cover has been reduced to lower or alter fuel volume.

Fuelbreak System: A system of relatively large open areas, interconnected by fuel breaks.

Fuel Modification Practice: The broad approach to fuel management on large area of wildland, or a limited approach to fuel management around structures.

Hardening of Structures: Application of fire resistive rating to a structure.

Prescribed Burning: Application of fire to wildland fuels when conditions such as weather, fuels and topography permit a specific objective to be accomplished.

Red Flag Alert: Extreme fire weather condition issued by the National Weather Service when wind speed exceeds 25 mph and relative humidity falls below 15%.

Residency Time: Time the flaming front of a wildfire impacts a specific area.

Shelter in Place: Area for residents or fire personnel to safely survive catastrophic wildfire.

C. Risks of Catastrophic Wildfire

1. General Overview: Existing risk of catastrophic wildfire to the proposed project area is from continuous Diegan coastal sage scrub and Southern mixed chaparral vegetation where it occurs along the perimeter of the property. The northwest corner of the project area includes heavy fuel area, consisting of Diegan coastal

sage scrub and Southern mixed chaparral. Diegan coastal sage scrub is also found in pockets along the northern, eastern and southern boundary of the project. Most of the project area is dominated by agriculture (oats) or disturbed grassland, which presents a less significant catastrophic wildfire risk.

2. Risk of Structural Fire: The existing structures on-site will either be demolished or protected by a fuel management zone consistent with the requirements of this Plan. Any new structures will be required to adhere to the fuel management and building standard requirements of this Plan. As such, the appropriate minimum vegetation management requirements and new construction standards will provide for a wildfire safe development.

Recent research conducted by USDA-Forest Service (Jack Cohen et al, 2000) has measured the effects of fire on structures, measured on a flat plane, no wind. This study found that the minimum safe distance in heavy fuel from radiated heat was 40 meters (130 feet). Lighter fuel as well as topography shortens this distance significantly. Conversely, slopes in excess of 25% would increase the required distance. The study did not account for flying embers/flaming brands or extreme wind in excess of 30 mph. Heavier fuel, high wind as well as steep slopes may require clearance in excess of 130 feet in some areas of the project.

D. BEHAVE PLUS Model Analysis

1. BEHAVE PLUS Model Assumptions: The following weather and fuel inputs have been provided to create a “worst case” wildfire scenario. These Models are used to replicate the amount of flame propagation that would exist under extreme or catastrophic wild fire weather conditions. While weather conditions play a major role in wildfire behavior, fuel conditions, as well as topography, are also a part of the equation. BEHAVE PLUS calculations assume there is no fire suppression activity.
 - a) Predominant Ground Cover: The assumed predominate ground cover for modeling purposes is coastal sage scrub and chaparral, combined with non-native grass. These fuels are highly volatile.
 - b) Wind Conditions: San Diego County is subject to high wind conditions, particularly during the fall and early winter months. Highest number of Santa Ana wind episodes as well as days of duration occurs during the month of November, while the month of August has the least number.
 - c) Wildfire Scenarios: Two fire/weather scenarios are employed to reflect (1) a catastrophic wildfire in the summer, with high air temperature; and (2) a fall/winter scenario with lower air temperature, lower live fuel moisture, and elevated wind velocity.
 - d) Event Time: The time of day is 12:00 PM.
 - e) Slope Adjustment: Since the majority of the proposed project is relatively flat, a zero slope calculation is used.
 - f) Weather Conditions: Weather conditions vary from month to month, as does live fuel moisture, sun angle, including amount of daylight, and air temperature. Air temperature may moderate during fall and early winter, but live fuel moisture may continue to drop through January or early

February. If any ground moisture is present, live fuel moisture will start rising in March and will peak in late May or early June, depending upon annual rainfall. In order to account for these variables, BEHAVE inputs include latitude and longitude for site specific forecasting.

f) Source of Weather (Wx) Data: Summer Fire-NWS; Fall Fire-Cedar Fire, 2003.

g) Fire Weather Scenarios:

Summer - Fire Weather Scenario:

Month:	September
Temperature:	105°F.
Relative humidity:	8%
1-hour fuel moisture:	2%
Live fuel moisture:	65%
Wind speed from SW:	15-20 mph
Slope:	0%

Fall/Early Winter - Fire Weather Scenario:

Month:	October
Temperature:	95°F.
Relative humidity:	7%
1-hour fuel moisture:	2%
Live fuel moisture:	55%
Wind speed from NE:	30-40 mph
Slope:	0%

2. BEHAVE PLUS Model Outputs:

- a) General: Using the above inputs for summer and fall/winter catastrophic wildfire conditions, outputs will be displayed to illustrate how fire moves through fuels found both off-site and on-site. The following BEHAVE PLUS fire spread models serve as indicators of catastrophic wildfire potential of the project area, as well as the fuels located onsite.
- b) Spotting Distance: Spotting Distance is the distance a burning brand, leaf or twig will carry in a wind driven fire. Spotting Distance is included in the BEHAVE PLUS model outputs.
- c) Ignition Component: Ignition Component is an indicator of the flammability of the fuel and is measured in percent. Out of 100 flying, burning brands or twigs, if 80 start a new fire down wind, the ignition component would be 80%. A probability of Ignition above 60% is

considered severe. Ignition Component is included in the BEHAVE PLUS model outputs.

d) Model Outputs:

28 Lots are impacted by FM 3 –Tall Grass

2 Lots are impacted by FM 4 – Southern mixed chaparral.

21 Lots are impacted by FM 6 – Diegan coastal sage scrub.

Fuel Model 3 - Tall Grass 2-3 feet

Summer Fire

Rate of Spread: 229 ch/hr or 3 mph

Flame Length: 21 feet

Spotting Distance: 0.8 miles

Probability of Ignition: 100 %

Fall/Winter Fire

Rate of Spread: 555 ch/hr or 7 mph

Flame Length: 31 feet

Spotting Distance: 1.6 miles

Probability of Ignition: 100%

Fuel Model 6 - Diegan Coastal Sage Scrub

Summer Fire

Rate of spread: 66 ch/hr or 1mph

Flame Length: 9.5 feet

Spotting Distance: 0.4 miles

Probability of Ignition: 100 %

Fall/Winter Fire

Rate of Spread: 163 ch/hr or 2 mph

Flame length: 14 feet

Spotting Distance: 0.9 miles

Probability of Ignition: 100 %

Fuel Model 4 - Mixed Southern California Chaparral

Summer Fire

Rate of Spread: 333 ch/hr or 5 mph

Flame Length: 43 ft

Spotting Distance: 1.3 miles

Probability of Ignition: 100%

Fall/Winter Fire

Rate of Spread: 982 ch/hr or 12 mph

Flame Length 72 ft

Spotting Distance: 2.9 miles

Probability of Ignition: 100%

Fuel Model 8 - Oak Understory/Chipped Biomass

Summer Fire

Rate of Spread: 5 ch/hr or 0.06 mph

Flame Length: 1.8 ft

Fall/Winter Fire

Rate of Spread: 11 ch/hr or 0.1 mph

Flame length: 2.6 ft

Spotting Distance: 0.1 miles
Probability of Ignition: 92%

Spotting Distance: 0.4 miles
Probability of Ignition: 100%

Note the difference in flame lengths between summer and fall. This is the result of high wind and lower live and dead fuel moisture in the fall model. Note the flame lengths in Fuel Model 8. This is due to Fuel Model 8 being partially sheltered by tree canopy as well as non-aerial.

Flame residency time is the time direct flame impingement occurs.

The effect of shade on fuel is significant. Just increasing shade to 70% coverage will raise the dead fuel moisture over 3%. This will lower the probability of ignition dramatically.

4. DEFENSIBLE SPACE AND VEGETATION MANAGEMENT ZONES

A. Fuel Management Zones

1. Fuel Management Zones – All Lots except Lots 29, 30, 31, 32, 33, 45 and 46: A 100 FOOT MINIMUM FUEL MANAGEMENT ZONE is required around each structure. This is to provide defensible space for fire suppression resources as well as providing protection from flaming sparks or embers carried by strong winds.

The 100 Foot Fuel Management Zone is divided as follows:

- a) Zone A-From structure out 30-feet. This Zone must be irrigated. Tree spacing should be 30-feet between canopies. Shrub spacing should be 15-feet between canopies. Lawn or low-lying plants (less than 3 inches) are recommended as ground cover.
 - b) Zone B-From the 30-foot end of Zone A out to 100-feet. This Zone need not be irrigated. Shrubs should not exceed eighteen inches in height. Tree separation should be the same as Zone A.
2. Fuel Management Zones – Lots 30, 31, 32, and 33: Lots 30, 31, 32, 33 and a portion of Lot 29 require 150 feet of clearance along the northern and eastern sides of structures facing the steeper slope areas of the northern and eastern project boundaries due to heavier fuel (FM 4). This Fuel Management Zone reduces from 150-feet to 100-feet along the eastern boundary of Lot 29 approximately 225-feet north of the southern lot line where the natural topography flattens. Lots 29, 32 and 33 shall have the typical 100-feet of clearance on the other exposures. Lots 30 and 31 shall have 150-feet of clearance on all 4-sides of any structure.

The 150 Foot Fuel Management Zone (Lots 29, 30 31, 32, and 33) is divided as follows:

- a) Zone A - From structure out 30-feet. This Zone must be irrigated. Tree spacing should be 30 feet between canopies. Shrub spacing should be 15 feet between canopies. Lawn or low lying plants (less than 3 inches) are recommended as ground cover.

- b) Zone B - From 30-foot mark to 100-foot mark. This Zone must also be irrigated. Shrubs should be less than eighteen inches high. Tree separation should be the same as Zone A.
 - c) Zone C - From 100-foot mark of Zone B, out 50 feet. This zone need not be irrigated. Trees should be separated 50 feet between canopies. Shrubs should be separated 20 feet between canopies. Ground cover should be less than 3 inches high.
3. Fuel Management Zones – Lots 45 and 46: A reduced clearance of 30-feet along the northern side of the pads adjacent to the Melody Road private drive is allowable for Lots 45 and 46 in conjunction with the requirement for enhanced building standards as identified in Section 6B of this Wildfire Safety Master Plan. The Fuel Management Zone around the west, south and east sides of structures on Lots 45 and 46 shall maintain the 100-foot clearance standard.

The Fuel Management Zone is divided as follows:

- a) Zone A (All Sides) - From structure out 30-feet must be irrigated. Tree spacing should be 30-feet between canopies. Shrub spacing should be 15-feet between canopies. Lawn or low-lying plants (less than 3 inches) are recommended as ground cover.
- b) Zone B (West, South and East Sides Only) - From the 30-foot end of Zone A out to 100-feet. Irrigated shrubs should not exceed eighteen inches in height. Tree separation should be the same as Zone A.

B. Planting within Fuel Management Zones

1. Acceptable Plants: The following shrubs and trees are examples of those plantings recommended for general landscaping within the fuel management zones - with appropriate maintenance:

Coastal live oak - *Quercus spp.*

California Sycamore – *Plantus racemosa*

Cottonwood – *populus fremontii*

Willow – *Pittisporum spp.*

California Bay – *Umbellularia californica*

California Black Walnut – *Juglans californica*

Liquidamber – *Liquidamber styraciflua*

Ceanothus spp.

Toyon – *Heteromeles arbutifolias*

Mountain Mahogany – *Cercocarpus betuloides*

Holly leaf cherry – *P. ilicifolia*

Dwarf periwinkle – *Vinca minor*

2. Prohibited Plants: The following shrubs and trees are highly flammable. These plants are prohibited with the fuel management zones. Some of these plants are not drought tolerant and therefore should not be planted within the project area:

Pampas grass – <i>Cortaderia spp.</i>	Eriogonum fasciculatum
Cypress – <i>Cupressus spp.</i>	Artemisia californica
Eucalyptus – <i>Eucalyptus spp.</i>	Salvia apiana
Juniper – <i>Juniperus spp.</i>	<i>Salvia columbariae</i>
Pine – <i>Pinus spp.</i>	

3. Trees within Fuel Management Zones: The planting of trees is not mandatory, but where planting of trees is allowed and a homeowner or the developer elects to plant trees, only the above recommended trees shall be allowed in the fuel management zones. Particularly noteworthy are the Coastal Live oak (*Q.agrifolia*) and California sycamore (*Plantus racemosa*) because both are highly fire resistive, and both are native. Additionally, trees must be maintained free of dead branches; and, must be limbed up 4 feet or 1/3 the height of the tree, whichever is greater.
4. Shrubs within Fuel Management Zones: In all planted areas outside of the “wet” zones of the uniform spacing of shrubs may be modified by clustering of smaller shrubs thus creating drifts, as long as such clustering does not result in an average spacing less than 15-feet on center. Additionally, shrub height is limited to 2 feet.

Community Fuel Management Implementation Program

The preceding Fuel Management standards have been prepared to provide a defensible space around all structures. In the situation where adjacent structures are constructed at the same time, the Fuel Management Zones will overlap such that the 30-foot Zone A standards could touch or overlap in the area between structures. Thus, the development of Fuel Management Zones around any 2 adjacent structures could be viewed as a “joint” or “joined” fuel management zone. However, it is anticipated that the homes at Peaceful Valley Ranch will be built over time on a custom or semi-custom home construction basis. As such, a fuel management program to protect the community as a whole, regardless of the sequence of individual home construction, is necessary and has been developed. This Community Fuel Management Implementation Program allows any single structure to be constructed while allowing the surrounding lots to remain vacant.

The Community Fuel Management Implementation Program standards are as follows:

1. A Restricted Building Zone setback to the PVR project boundary line has been established along each perimeter lot to ensure that the minimum Fuel Management Zones identified in Section 4A above can be achieved without off-site clearing. No habitable or combustible structures are allowed to be constructed within the Restricted Building Zone on any perimeter lot as shown on Exhibit C.
2. All of the PVR property inside the outer limit of the Fuel Management “Zone B” line as shown on Exhibit B shall initially be brushed and vegetated by the PVR Developer at the time of project grading and infrastructure construction in accordance with the “Zone B” standards identified herein. Each subsequent owner of any lot within the Peaceful Valley Ranch development will be required under the provisions of the

project's Covenants, Conditions and Restrictions ("CC&Rs") to maintain the vegetation in a managed condition pursuant to the standards identified herein. Under the CC&Rs, the Homeowners Association for the project will have the right to require specific brush maintenance performance by each owner. The Homeowners Association shall also have the right under the CC&Rs to implement vegetation management activities itself in the event any owner should fail to do so as required.

3. With construction of a structure by a lot owner, that owner shall also provide a minimum 30-foot wide Fuel Management Zone around the perimeter of the building pad extending to the private road frontage as shown on Exhibit B and in accordance with the "Zone A" Fuel Management standards identified herein.

4. With construction of a structure by a lot owner, all pad areas shall be landscaped in accordance with the "Zone A" Fuel Management standards identified herein. With implementation of the above provisions, no individual combustible structure could be constructed within the project that was not protected by at least a 30-foot wide "Zone A" Fuel Management Zone, and at least a 70-foot wide "Zone B" Fuel Management Zone (or overlapping Zone B Fuel Management Zones), regardless of the timing and/or sequence of construction of those structures. As such, both individual structures and the community as a whole are protected throughout the development process.

5. SITE PLANNING AND DESIGN STANDARDS

A. Roads and Driveways

1. Roads: All on-site private roads must provide ample width to allow evacuations while fire units are responding to any fire threat. All roadway widths and designs shall be designed and constructed to RFPD standards and approval, and shall comply with the following standards.
 - a) Peaceful Valley Ranch Road from the intersection of SR-94 to the intersection of Kiwi Ridge Road shall consist of 32-feet of paved width with no parking either side, with 4-feet of graded shoulder each side within a 40-foot wide private road and utility easement.
 - b) All other private residential roads within Peaceful Valley Ranch shall consist of 32-feet of paved width with parking 1-side, with 4-feet of graded shoulder each side within a 40-foot wide private road and utility easement.
 - c) All on-site private road grades shall not exceed 15%.
 - d) No on-site private road shall have a curvature radius less than 100-feet, measured at centerline, except at County approved standard knuckle locations.
 - e) Vertical curves and dips in all on-site private roads shall have a radius of not less than 50-feet, and shall be passable by a 20-ton fire truck.
 - f) Cul-de-sacs shall not exceed those lengths shown on the approved Tentative Map for the development of the project. Cul-de-sac bulbs shall have a minimum diameter of 72-feet of paved width, parking 1-side, with 4-feet of graded shoulder within a 100-foot diameter private easement.

- g) Fire hydrants shall be located at each roadway intersection, cul-de-sac bulb entrance, and, generally, every 850-feet of roadway length as approved by the RFPD.
 - h) The 1,250-foot long cul-de-sac at the end of Peaceful Valley Ranch Road in the southeast corner of the property shall be connected to the polo field safety zone/staging area and to the polo field driveway and off-site emergency access via a 20-foot wide emergency access easement along the southern boundary of Lot 19 as shown on the approved Tentative Map.
 - i) A minimum 15-foot wide strip of land on each side of each on-site road outside of the private roadway easement shall be planted and maintained by each of the respective lot owners with fire resistive landscaping.
 - j) A minimum 15-foot vertical clearance to any tree canopy or other encumbrance shall be maintained by the Peaceful Valley Ranch Homeowners Association for trees within all on-site private roadway easements, and by each of the respective lot owners for trees on their respective private property along all on-site private roads.
2. Driveways: All private driveways shall be paved, or constructed of a permeable design capable of supporting a 20-ton fire truck, and shall be approved by the RFPD.
 3. Driveways Exceeding 150-feet: All private driveways exceeding 150-feet in length shall have:
 - a) An un-obstructed, surfaced width of 20-feet;
 - b) A grade not exceeding 15%, unless otherwise approved by the RFPD;
 - c) A turn-around approved by the RFPD;
 - d) One or more fire hydrants located at the end of the driveway such that all portions of the structure are within 500-feet of a hydrant;
 - e) Horizontal and vertical curves and clearances consistent with those applicable to on-site private roadways.
 4. Crossings: All on-site roadway bridges or other drainage course crossings shall be designed and constructed to the approval of the RFPD. The paved portion of crossings shall be no narrower than the paved portion of the private road. Bridges, if any, shall be designed to support the RFPD apparatus, meet County Department of Public Works standards, and shall be of non-combustible construction. Any flammable vegetation shall be cleared from under any bridge and to a distance of 15-feet to each side.
 5. Gates: All gates on on-site private roads and private driveways shall:
 - a) Be designed to the approval of the RFPD;
 - b) Have an un-obstructed opening 2-feet wider than the roadway or driveway paving;
 - c) Be inset a minimum of 30-feet from the intersecting roadway pavement;
 - d) Be of a sliding-type, rather than swinging-type design where feasible;

- e) Be constructed of non-combustible materials;
 - f) Be equipped with knox switches, with manual override capability.
- 6: Street Signs: All on-site private roads shall be named and signed. Street signs shall be located at each intersection and shall be clearly visible to emergency vehicles from a minimum distance of 100-feet. Signs shall have 4-inch high reflecting letters and/or numbers, 1-inch wide, with at least ½-inch stroke. Lettering shall be reflective on a contrasting background. Signs shall be mounted 6-feet to 8-feet above grade.
7. Flag Lots: Driveway entrances to flag lots shall have signs displaying the building address located at the intersection of the on-site private road and driveway entrance.

B. Fire Protection Water System

1. Supply and Distribution System: An adequate and reliable water supply is critical to fire protection. This development will have a public water system with mains, hydrants, and stored water connections to the Otay Water District. The on-site public water system will consist of a gravity feed, looped system not dependent upon on-site pumps or electrical power. The on-site water supply and distribution system shall be seismically engineered, complying with the National Fire Protection Association (NFPA) standards, including NFPA 13, 22, and 24, as well as the standards and requirements of the RFPD, Otay Water District, and the American Waterworks Association.
2. Fire Flows:
 - a) The water supply and distribution system shall provide a minimum of 2,500 GPM of fire flow to all portions of the development for 2 hours at pressures required to supply fire sprinklers and provide 20 PSI residual at hydrants during periods of peak domestic demand. This fire flow is based upon all residential structures having residential fire sprinkler systems. Testing criteria for the system shall be established by the RFPD.
 - b) All single-family residential dwellings over 3,600sf shall be constructed as stipulated in Table A-111-A-1 of the 1991 Uniform Fire Code for a maximum of 2,000 gallons per minute fire flow.
 - c) All other occupancies shall be provided with a fire flow as per Table A-111-A-1 of the 1991 Uniform Fire Code.
3. Water Distribution Mains:
 - a) Wherever feasible, water distribution mains for fire protection shall be looped systems with mains of eight-inches or larger. Wherever feasible, dead-end mains shall be avoided. Water distribution mains shall be sized to properly deliver the required fire flow to all portions of the project at adequate residual pressures for service to fire sprinklers and hydrants during periods of peak demand.
 - b) Sectional valves shall be provided every 800 to 1,000-feet.

- c) Adjoining pressure zones or water systems shall have fire hydrants within 100-feet of each other to allow emergency interconnections during a fire.
- d) Fire service mains, valves and appurtenances shall be UL listed and approved by the RFPD for fire protection.

4. Hydrants:

- a) All fire hydrants shall comply with the standards of the RFPD and shall have at least one 4-inch and one 2-1/2-inch NST outlet. Hydrants shall be connected to the water main with minimum 6-inch water laterals. Hydrant outlets shall be a minimum of 18-inches above finished grade.
- b) In conformance with Table 903.4.2-B of the County Fire Code, fire hydrants shall be spaced a maximum of 850-feet apart on all roads within the project, and on the right side of the anticipated response route. Hydrants shall be located within 4-feet to 12-feet of the edge of roadway pavement. Hydrants shall also be located at all roadway intersections, and at the entrance to cul-de-sac bulbs, on the right side of the road. Hydrants shall have clear access of 15-feet on each side, and shall be located a minimum of 8-feet from any native flammable vegetation. Hydrants shall also be provided on all private driveways exceeding 150-feet in length.
- c) Where sprinkler system pumper systems are required, a hydrant shall be located within 70-feet. Pumper connections and hydrants shall be at least 25-feet from buildings.
- d) Blue dot markers shall be provided in the roads to identify hydrant locations. Green dot markers shall be provided in the roads to identify pumper connection locations.
- e) Each hydrant shall provide at least 1,500-gallons per minute flow with at least 30-pounds per square inch pressure when flowed individually. A combined flow of 2,500-gallons per minute or greater shall be obtained when flowing two adjoining hydrants.
- f) Hydrants shall be provided at safety zones / staging areas and at helipads.

C. Utility Lines

- 1. Utility Lines: All new utility lines serving the development shall be installed underground. The existing overhead power transmission line along SR-94 shall remain.

D. Safety Zones / Staging Areas / Helipads

- 1. Safety Zones / Staging Areas: The private horse stable and training/polo field lot (Lot 51) and the fire station lot (Lot 49) are herein identified as "Safety Zones and Staging Areas" whose purpose is to provide an area of safe refuge, if needed, and a staging area for fire fighting resources and deployment. Both of the safety zone / staging areas shall be equipped with fire hydrants and public telephones.
- 2. Helipad: The polo field safety zone/staging area lot (Lot 51) shall be provided with Forest Service type helipad at a location and of a design to be approved by

the RFPD. The pad shall be a minimum of 125-foot diameter. The pad shall not be paved, but shall be designed with a base material appropriate for the intended use.

3. **Staging Area Maintenance:** As an integral component of this Wildfire Safety/Vegetation Management Master Plan, the polo field area shall be retained and maintained by the equestrian facility operator (or lot owner) as a relatively level, properly mowed and healthy grassed field to allow for its potential use as an emergency staging area, to the satisfaction of RFPD, regardless of its on-going use as a polo field or otherwise. Compliance with this provision, as well as all other provisions of this Plan, is assured by the rights of RFPD to enforce the provisions of this Plan through legal enforcement of its rights under the Fire Service Agreement executed between RFPD and the project developer, this Plan being a referenced attachment to that Agreement.

6. BUILDING IGNITION AND FIRE RESISTANCE STANDARDS

Based upon the foregoing risk assessment, vegetation management and ignition resistant construction will be necessary for all structures and appurtenances. As such, the following fire protection standards are set forth and shall be applied to all development within Peaceful Valley Ranch.

A. Building Design and Construction Requirements – Basic Fire-Resistive Standards

1. **Applicability:** All structures built in the project shall comply with the following Basic Fire-Resistive Construction Standards. In addition, all structures built on Lots 45 and 46 shall also comply with the Enhanced Fire-Resistive Construction Standards provided in this Wildfire Safety Master Plan.
2. **Sprinkler Systems:** An automatic sprinkler system complying with the County Fire Code and NFPA 13-R standards shall be installed in all single-family residential dwellings. Residential or quick response sprinklers shall be used in all livable spaces of the dwelling. Sprinkler protection shall also be provided in all attic spaces and attached garages. All sprinkler system plans shall be submitted to and approved by the RFPD.
3. **Roof Covering and Construction:** All roof construction shall be Class "A" fire rated assembly with a Class "A" roof covering material. For roof coverings where the profile allows a space between the roof covering and the roof decking, the space at the eave ends shall be fire stopped to preclude entry of flames or embers.
4. **Exterior Walls:** All exterior wall surface materials shall be non-combustible or an alternate approved in accordance with the provisions of the County Fire Code. Exterior walls shall be protected with 2-inch nominal solid blocking between rafters at all roof overhangs. Wood shingle and shake exterior wall coverings are prohibited. Wood siding consisting of 3/8-inch plywood or 3/4-inch drop siding is permitted but must have an underlayment of 1/2-inch fire-rated gypsum sheathing that is tightly butted or tapped and mudded. Exterior wall openings are not required to be fire-rated, except as may otherwise required by the County Building Code or County Fire Code.
5. **Exterior Glazing:** All glass or other transparent, translucent or opaque glazing assemblies shall be of tempered glass, multi-layered glass panels or glass block

having a fire-protection rating of not less than 20-minutes; or, other assemblies approved in accordance with the provisions of the County Fire Code. Glazing frames made of vinyl materials shall have welded corners, metal reinforcement in the interlock area, and be certified to ANSI/AAMA/NWDA 101/I.S.2-07 structural requirements.

6. Skylights: All skylights shall be of tempered or wire glass.
7. Venting: Attic ventilation openings or louvers shall not be permitted in soffits, rakes, eave overhangs, between rafters at eaves, or in other similar exterior overhanging areas, except that enclosed eaves may be vented on the underside of the eave closest to the fascia provided the closest edge of the vent opening is at least 12-inches from the exterior wall surface and the venting is screened or has holes less than ¼-inch diameter. Attic vents in soffits may also be permitted by the RFPD on those areas of the building that do not face the wildland fuels, when the RFPD determines it is not a hazard. Roof vents, dormer vents, gable vents, foundation ventilation openings, vertical ventilation openings in vertical walls, or other similar ventilation openings shall be louvered and covered with ¼-inch non-combustible, corrosion-resistant metal mesh or other similar material that offers equivalent protection. Turbine attic vents shall be equipped to allow one-way direction rotation only, they shall not free spin in both directions.
8. Protection of Eaves: Combustible eaves and soffits shall be enclosed as required in accordance with the provisions of the County Fire Code, except that eaves of heavy timber construction are not required to be enclosed provided attic venting is not installed in the eave area. For purposes of this provision, heavy timber construction shall consist of a minimum of 4"x 6" rafter ties and 2"x 6" decking.
9. Under-Floor Protection: All under-floor areas shall be enclosed to the top of the foundation with exterior walls constructed in accordance with the provisions herein and the County Fire Code.
10. Insulation: Paper-faced insulation shall be prohibited in attics or ventilated spaces.
11. Spark Arrestors: All chimneys, flues, and stovepipes attached to any fireplace, stove, barbecue, or other solid or liquid burning appliance or device shall be equipped with a spark arrestor consisting of corrosion-resistant, 12-gauge welded or woven wire mesh with openings not to exceed ½-inch, as approved by the RFPD.

B. Building Design and Construction Requirements–Enhanced Fire-Resistive Standards–Lots 45 and 46

1. Applicability: In addition to the Basic Fire-Resistive Construction Standards identified in this Wildfire Safety Master Plan, all structures built on the lots identified above shall also comply with the following Enhanced Fire-Resistive Construction Standards
2. Venting: Attic ventilation openings or louvers shall not be permitted in soffits, rakes, eave overhangs, between rafters at eaves, or in other similar exterior overhanging areas.

3. Gutters and Downspouts: Gutters and downspouts shall be constructed of non-combustible material. Gutters shall be designed to reduce the accumulation of leaf litter and debris that contributes to roof edge ignition.
4. Exterior Doors: All exterior doors shall be of approved non-combustible construction or other construction approved by the RFPD, and shall be constructed of solid core wood not less than 1-3/4-inch thick or have a fire protection rating of not less than 20-minutes. Glazing within doors shall comply with the exterior glazing standards identified herein.
5. Skylights: Skylights shall be tempered glass or a Class "A" rated assembly.
6. Projections: Exterior balconies, carports, decks, patio covers, unenclosed roofs and floors, and similar architectural appendages and projections shall be of non-combustible construction, fire-retardant treated wood, heavy timber construction, or 1-hour fire-resistive construction. When such appendages and projections are attached to exterior fire-resistive walls, they shall be constructed to maintain the fire-resistive integrity of the wall. In lieu of the fire protection outlined above, decks, balconies and similar projections may be enclosed from the floor level to ground level, enclosing the projection to the exterior wall of the building with materials approved for 1-hour construction or protected by an approved automatic fire sprinkler system.
7. Fences and Other Attachments to Structures: The first 5-feet of fences and other items attached to a structure shall be constructed of non-combustible material or meet the same fire-resistive standards as the exterior wall of the structure, except that wooden gates are permitted provided that a 5-foot minimum length section of non-combustible fencing material is installed as a firebreak immediately adjacent to the gate.

C. Smoke and Fire Alarms

1. Smoke Detection and Alarm System: All habitable structures shall have an approved smoke detection and alarm system in compliance with the Uniform Building Code and NFPA standards.
2. Fire Alarm Bell: All single-family dwellings shall be equipped with a fire alarm bell tied to the sprinkler system.

D. Construction Phase Activities

1. Construction Phase Standards: The following standards shall be adhered to during all phases of construction:
 - a) The contractor shall coordinate all construction schedules and areas of work with the RFPD.
 - b) The contractor shall control all non-construction related vehicle access to construction areas. All construction related vehicles on-site shall have required spark-arresting devices.
 - c) The contractor shall administer and oversee all construction activities to ensure compliance with all fire safety regulations.

- d) The all-weather access roads shall be installed and maintained during all construction phases to the RFPD approval.
- e) Fire hydrants and water systems shall be operational at building sites prior to combustible materials being stored at the building site.
- f) A reliable method of call 911 shall be provided and maintained at all construction sites.

7. GENERAL PROVISIONS

A. Standards, Approvals, CC&Rs, Inspections, Other Requirements

1. Standards: All fire protection systems, access roads and other development components shall be designed, constructed, installed and maintained in accordance with these standards, fire code requirements, and the standards of the National Fire Protection Association.
2. Approvals: All plans for vegetation management, roads, water systems, hydrants, fire protection systems, structures of any kind, and fire alarm systems shall be submitted to the RFPD, County Department of Planning and Land Use, and other applicable agencies having jurisdiction for review and approval prior to construction.
3. Covenants, Conditions & Restrictions: All lots shall be subject to restrictive Covenants, Conditions and Restrictions (CC&Rs) which shall be provided to and acknowledged by each lot owner acquiring an interest in any lot, and shall reference these Wildfire Safety Master Plan standards and RFPD requirements.

Property owners are to be informed that the project resides within a High Fire Hazard Zone, as defined by the Public Resources Code of the State of California; and, as such, specific regulations apply and each lot owner is responsible for observing fuel mitigation measures and vegetation maintenance within his lot.

The non-revocable section of the CC&R's shall, among other items, provide:

- a) All property owners and residents of Peaceful Valley Ranch shall receive, prior to sale and occupancy of the property, a packet that specifically addresses wildfire safety, and they must acknowledge receipt and understanding of all wildfire safety provisions, including vegetation management.
 - b) The developer shall seek approval from the San Diego Rural Fire Protection District Fire Chief regarding all wildfire data for dissemination to prospective residents/owners and the developer/association shall annually have this data reviewed to reflect fire code changes or additions.
 - c) Under the non-revocable section of the CC&R's, the governing body of the association administering the CC&R's shall, after consultation with the San Diego Rural Fire Protection District Fire Chief, inventory the community for compliance with the Fire/Vegetation Management Plan and stipulate to the San Diego Rural Fire Protection Fire Chief that the project is in general compliance with this Wildfire Safety Master Plan.
4. Inspections: Annual inspections may be conducted by the RFPD, or an authorized wildfire safety consultant retained by the RFPD, to ensure ongoing compliance with these Wildfire Safety Master Plan standards.

5. Other Codes and Requirements: Nothing in this Wildfire Safety Master Plan shall relieve and developer, architect, contractor, lot owner or structure occupant from compliance with all applicable requirements of the RFPD, or of the provisions of the locally adopted fire code or building code, or of any requirements or standards of any county, state or federal regulations.

8. SHELTERING IN PLACE

Simply put, “sheltering-in-place” means staying inside a properly protected house or structure that is fire resistive and airtight during a wildfire, and remaining there until the emergency is over. In communities that have incorporated “sheltering-in-place” construction and landscaping features, “sheltering-in-place” is preferred by fire agencies over evacuation because of the risks involved with evacuation. Of those who perish during large wildfires, history has shown that the majority of deaths occur during evacuation efforts. Existing “sheltering-in-place” communities in San Diego include, among others, Bernardo Lakes Estates, The Bridges, Rancho Cielo, The Crosby, 4S Ranch, and Santa Fe Valley.

WITH THE IMPLEMENTATION OF THIS WILDFIRE SAFETY/VEGETATION MANAGEMENT MASTER PLAN, THE SAN DIEGO RURAL FIRE PROTECTION DISTRICT HAS DESIGNATED THE PEACEFUL VALLEY RANCH PROJECT A SHELTERING-IN-PLACE COMMUNITY.

Some of the principal features incorporated into this Plan that allow Peaceful Valley Ranch to be designated a “sheltering-in-place” community include:

1. Building Design and Construction standards incorporating:
 - Fire-resistive construction materials
 - Class “A” non-combustible roofing and roof assembly
 - Residential fire sprinklers throughout
 - Boxed eaves
 - Dual pane or tempered glass windows
 - Chimneys with spark arrestors incorporating a minimum ½” screening
 - Appropriate venting restrictions
2. Landscaping Design and Construction standards incorporating:
 - Appropriate and adequate Fuel Management Zones protecting the community at large
 - Fire-resistive landscaping materials and planting standards
3. Community Planning standards incorporating:
 - Adequate roadway and driveway widths, able to accommodate large firefighting apparatus
 - Adequate water supply for firefighting efforts
 - Joint Use RFPD / USFWS fire station on-site
 - Safety Zones for fire fighting operations
 - Helipad for fire fighting operations

9. PROJECT DESIGN ELEMENTS TO BECOME CONDITIONS OF APPROVAL

- On-site fire management for vegetation fuel management and defensible space. The applicant shall implement all planning and design measures as outlined in the "Wildland Safety/Vegetation Management Master Plan" prepared by Scott Franklin Consulting dated September 2006.

10. ENFORCEMENT

This Wildfire Safety / Vegetation Management Master Plan is a referenced attachment to that certain Fire Service Agreement between the San Diego Rural Fire Protection District (RFPD) and Peaceful Valley Ranch LLC, original property owner, dated November 1, 2005. That Agreement provides that RFPD shall have the right to enforce the requirements of this Plan through the implementation of the Project and thereafter; and, that all applicable requirements of this Plan shall be included in the Codes, Covenants and Regulations adopted for the Project. As such, RFPD retains authority to enforce the provisions of this Plan through legal enforcement of its rights under the Fire Service Agreement.

11. BIBLIOGRAPHY

1981

Sprecher v. Adamson Companies

30 Cal.3d 358; 178 Cal.Rptr.783,636 P.2d 1121

1981

Burning by Prescription in Chaparral

L. Green

USDA-Forest Service

Gen. Tech. Report PSW-51

1982

Aids to Determining Fuel models for Estimating Fire Behavior

H.Anderson

USDA-Forest Service Gen. Tech Report INT-122

22p.

1983

How to Predict the Spread and Intensity of Forest and Range Fires

R. Rothermel

USDA-Forest Service

Gen Tech Report INT-143 June 1983

161 p.

1984

BEHAVE: Fire Behavior Prediction and Fuel Modeling System

R. Burgan, R. Rothermel

USDA-Forest Service PMS 439-1

1986

Fire and Chaparral management at the Chaparral/Urban Interface

P.Riggan, S. Franklin, J.Brass

Fremontia 14(3):28-30

1989

BEHAVE: Fire Behavior Prediction and Fuel Modeling System-Burn Subsystem

P.Andrews, C.Chase

PMS-439-3 93p.

1990

RXWINDOW: Defining Windows of Acceptable Burning conditions

Based on Desired Fire Behavior

P. Andrews, L. Bradshaw

USDA-Forest Service, Intermountain Research Station

General Technical Report INT-273

54 p.

1991

Field Reference Guide

National Advanced Resource Technology Center

Boise, ID

1993

Chaparral Management Techniques - An Environmental Perspective

S. Franklin

Fremontia

21(4):21-24

1995

Fuel-Driven Fire Regimes of the California Chaparral

R. Minnich

Brush fires in California: Ecology and Resource Management

21-27

International Association of Wildland Fire

M.Price, N. Waser, K. Taylor, K.Pluff

Brush fires in California: Ecology and Resource Management

51-61

International Association of Wildland Fire

1995

Fire Management, Fire Behavior and Prescribed Burning

S.Franklin

Brushfires in California: Ecology and Resource Management

International Association of Wildland Fire

29-33

1995

The Oakland Hills Fire of October 20: An Evaluation of Post-Fire Response

F. Booker, W. Dietrich, L. Collins

Brush Fires in California: Ecology and Resource Management

International Association of Wildland Fire

163-170

1995

Fire Intensity and Vegetation Recovery in Chaparral: A Review

M. Borchert, D. Odion

Brush Fires in California: Ecology and Resource Management

91-100

International Association of Wildland Fire

1995

Fire Frequency in Southern California Shrublands: Biological

Effects and Management Options

P. Zedler

101-112

Brush Fires in California: Ecology and Resource Management

International Association of Wildland Fire

1996

California's I Zone-Urban/Wildland Fire Prevention and Mitigation

C. Rice

Fire Ecology

Publication of Calif. Dept. of Forestry and Fire Protection
Chapter 13 Pg. 162-174

1996

California's I Zone-Urban/Wildland Fire Prevention and Mitigation
S. Franklin
Fuel Management
Publication of California Department of Forestry and Fire Protection
Chapter 15 Pg.185-193

1996

California's I Zone-Urban/Wildland Fire Prevention and Mitigation
D. Sapsis
Fire Behavior Modeling
Publication of Calif. Dept. of Forestry and Fire Protection
Chapter 17 Pg. 204-213

1998

Fire
Reprints of Fire Issues
Fremontia

1999

Reexamining Fire suppression Impacts on Brushland fire Regimes
J. Keeley, C. Fotheringham, M. Morales
Science Vol 284 11 June 1999 4 *pgs*

1999

Oaks & Folks
Tan Oak and Coast Live Oak Under Attack
University of California
Integrated Hardwood Range Management Program
Volume 14, Issue 2, August 1999 *Pg. 1*

2000

Wildland Fire in Ecosystems: Effects of Fire on Flora
Chapter 6: Fire in Western Shrubland, Woodland and
Grass Ecosystems. *Pg. 121; 39 pgs.*
General Technical Report RMRS-GTR-42, Volume 2

2000

Wildland Fire in Ecosystems: Effects of Fire on Fauna
General Technical Report RMRS-GTR-42, Volume 1

2000

Vegetation Management and Prescribed Fire

S. Franklin, *Pg. 31-35*

2nd Interface Between Ecology and Land Development in California

U.S. Geological Survey Open -File Report 00-62

Edited by J. Keeley, M. Keeley & C. Fotheringham

2000

What is the Wildland Fire Threat to Homes?

J. Cohen, *13 pgs*

USAD Forest Service, Rocky Mountain Station

Fire Sciences Laboratory, Missoula MT.

INSET

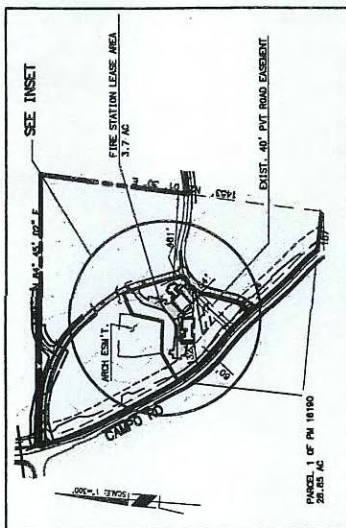
597-060-02

1. PROJECT

1. PROJECT WILL BE CONSTRUCTED IN TWO (2) PHASES, ALL GRADING WILL BE DONE PER PHASE 1.
2. PARKING
- | | | |
|------------------------|--|--------|
| STANDARD PARKING | 8' X 10' 8" / 22' | BACKUP |
| HANDICAP PARKING | 14' X 16' 8" / 24' | BACKUP |
| TOTAL PARKING PROVIDED | 28 (1 PER 300 SF) - 3 FOR GUEST PARKING PLUS 25 (6408 SF/300 SF) | |

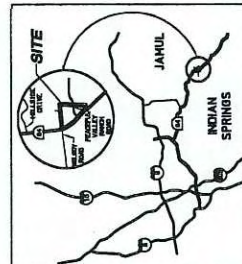
PROJECT LEADS

- LIMITS OF GRADING
 TYPE OF SLOPE
 EXISTING CONTIGOR
 1. 2:1 MAX CUT/FILL SLOPE
 (UNLESS OTHERWISE NOTED)
 34" WIDE PAVED DRIVEWAY
 CONCRETE OF FLOOR
 DRAINAGE DITCH
 STORM DRAIN ELEVATION 10"
 (UNLESS OTHERWISE NOTED)
 PERSONAL/PROPERTY
 STORM DRAIN INLET
 EXISTING PAVEMENT
 TELECOM PALE
 STOREDRAIN CLEAVOUT
 CATCH BASIN
 EXISTING ANTENNAE
 CUM STANDING ENCLOSURE
 CHAINLINK GATE
 PROPOSED FENCED HEIGHT OF
 ACCESS FOR VEHICULAR INGRESS
 AND EGRESS TO CAMP ROAD
 RELINQUISHED RIGHTS OF
 ACCESS PER PARCEL MAP 16180
 AREA CONSIDERED PER PHASE 2
 PROPOSED AC PAVEMENT



LEGAL LOT PARCEL EXHIBIT

PHASING TABLE		
ITEM	PHASE 1	PHASE 2
BUILDINGS (SF)	APARTMENT BUILDING (5,432 SF) LIFES ADMIN BUILDING (5,738 SF)	RPTD ADMIN BUILDING (5,738 SF)
PARKING SPACES	#1 - #15 (10 STANDARD & 1 HC SPACE)	#16 - #28 (12 STANDARD & 1 HC SPACE)



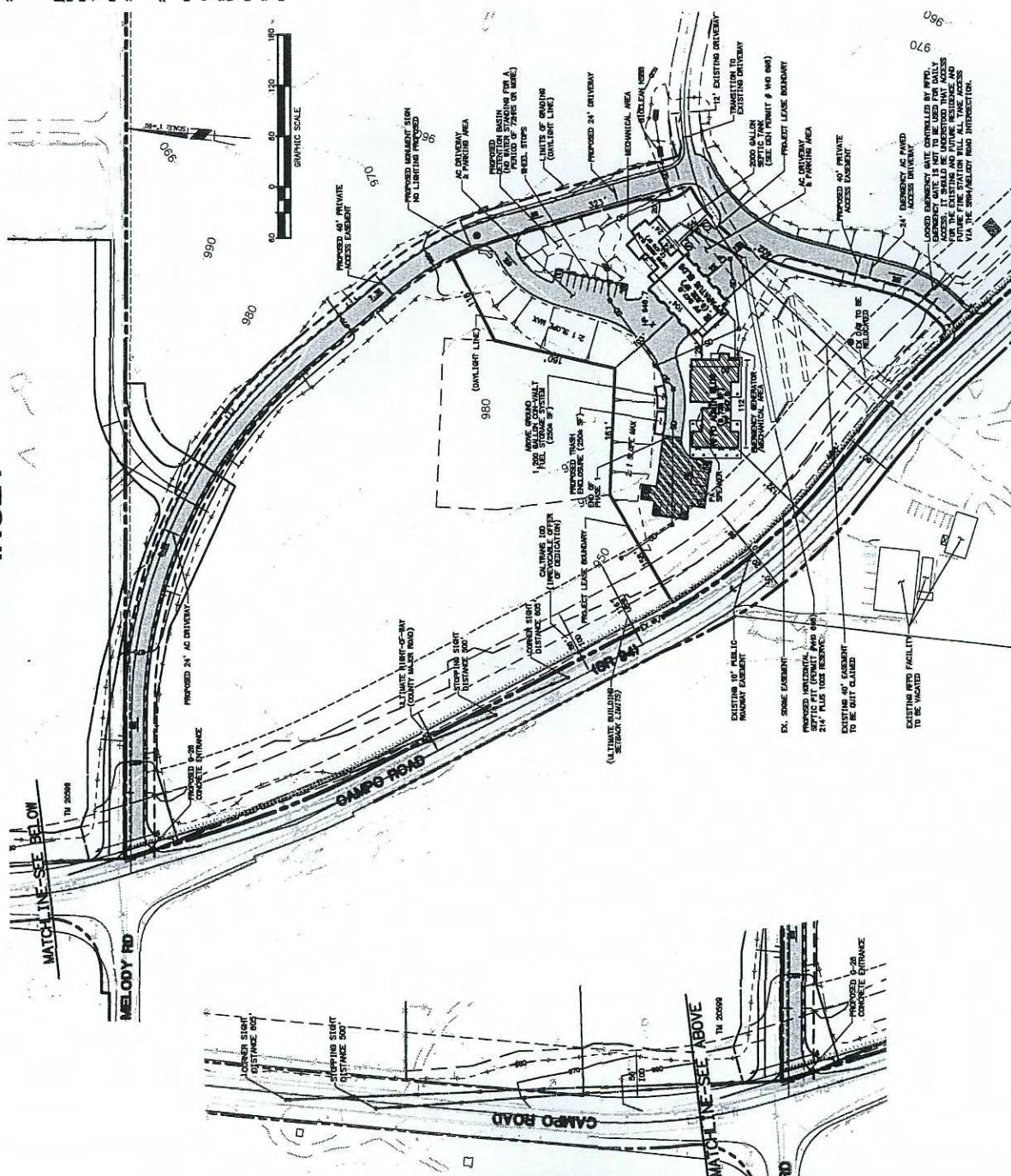
**RURAL FIRE STATION #66
SITE PLAN
S04-042**

WICINITY MAP

EXHIBIT A RBF

ONLINE

SHEET 1 OF 4



PEACEFUL VALLEY RANCH

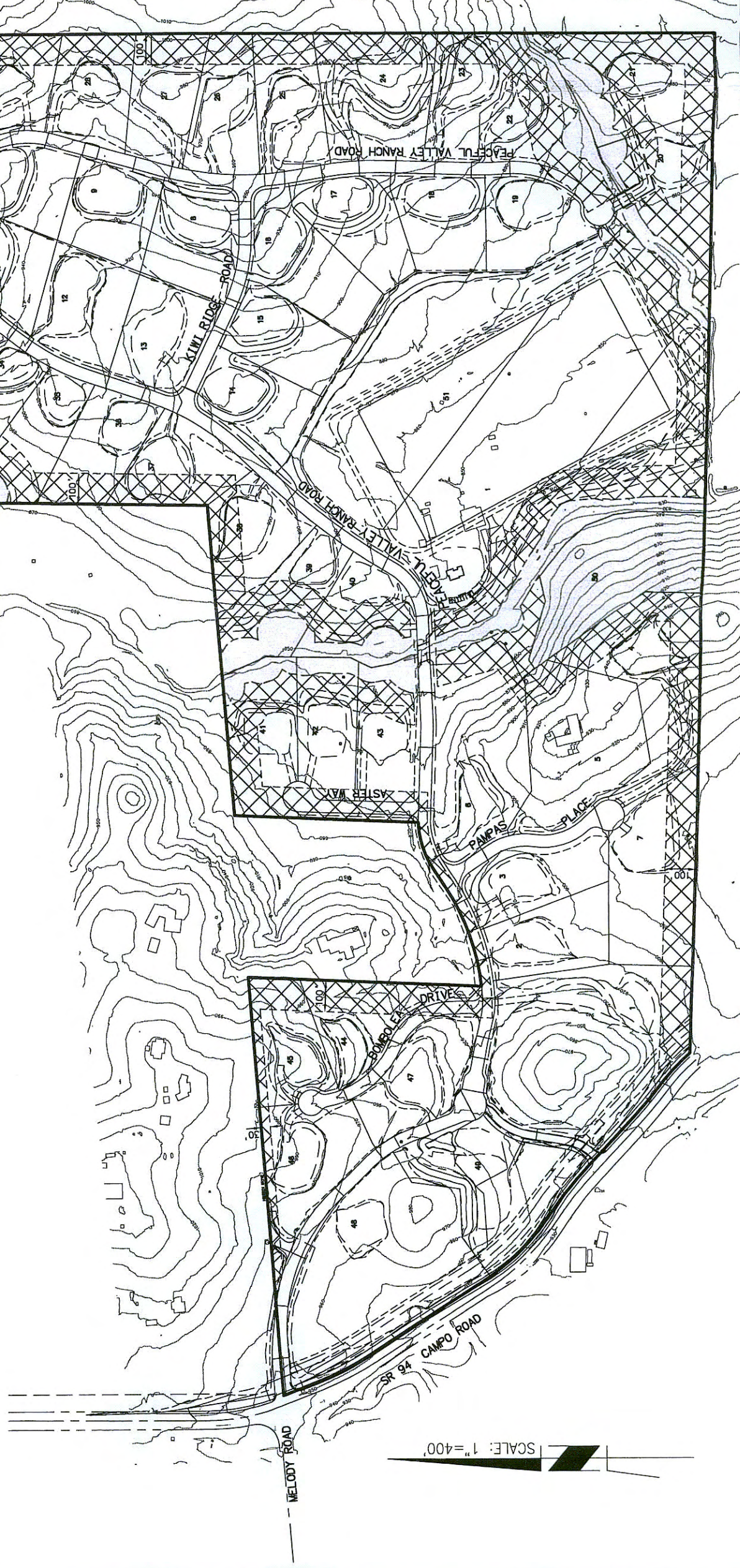
FUEL MANAGEMENT PLAN / LIMITED BUILDING ZONE

LEGEND



RESTRICTED BUILDING ZONE - 30' - 150'

BIOLOGICAL EASEMENT



SCALE: 1"=400'

EXHIBIT B

PEACEFUL VALLEY RANCH

FUEL MANAGEMENT PLAN

PLANNING ■ DESIGN ■ CONSTRUCTION

RBF
CONSULTING

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